# QUARTERLY PERISCOPE.

## FOREIGN INTELLIGENCE.

### ANATOMY.

1. *Newly discovered arrangement of the Arteries in the Erectile Tissue of the Penis.*—The second number for 1835, of Müller's (late Meckel's) *Archiv. fur Anatomie und Physiologie*, contains the account of an interesting discovery recently made by the editor, Professor J. Muller of Berlin, relating to the disposition of the small arteries of the penis, which tends to explain the structure of the erectile tisue of that organ,—a subject which, notwithstanding the investigations of Cuvier, Tiedemann, Moreschi, and Panizza, was still involved in much obscurity. These observations point out a fact entirely new in the structure of the arteries of the erectile texture, and promise to throw some light on the nature of the erectile condition of the blood-vessels.

Most of those who have investigated the structure of the erectile textures of the penis by injections, have contented themselves with filling the veins of the organ, and thus, although the structure of the venous caverns of the *corpora cavernosa*, and the dilated veins of the *corpus spongiosum urethræ* was sufficiently well understood, yet very little was known respecting the mode of termination of the smaller arteries. It has been generally believed that the same small capillary arteries which nourish the penis carry the blood into capillary veins, that the blood passes from these into the dilated venous branches or sinuses, and that the state of erection depends on the retardation of the flow of blood in these venous spaces.

Professor Müller has by a careful injection of the arteries of the penis, pointed out, besides the capillary branches which nourish the penis and transmit the blood into the capillary vessels and dilated veins, a number of very remarkable appendices connected with the smaller arteries, both in the *corpora cavernosa penis* and *corpus spongiosum urethræ*, which, from several circumstances, it is very probable, are the vessels more immediately concerned in maintaining an increased quantity of blood in the penis during erection.

The easiest way of rendering these two sets of arterial branches apparent is to inject the principal artery of the penis, before its subdivision, with size and vermilion of moderate consistence, and then making a longitudinal section of one of the *corpora cavernosa*, to wash away any part of the injected mass which may have passed into the venous spaces. The ramifications of the nutrient arteries will then be easily seen upon the inner sides of the venous spaces, the arteries becoming smaller and smaller, until at last they pass into the minute

capillary net-work, the branches of which cannot be seen with the naked eye. Besides these nutrient ramified arteries, there will also be seen upon a careful examination another set of arterial branches of a different size, form and disposition, which are given off nearly at right angles from both the larger and smaller trunks of arteries. These arterial processes are about one-hundredth of an inch in diameter, and one-twelfth long, and are quite easily seen with the naked eye. They project into the cavities of the spongy substance, and terminate either bluntly or by dilated extremities, without undergoing any ramification. These short arterial processes are turned round at their extremities into a semi-circle or more, and present a contorted appearance, which circumstance has suggested to Professor Müller the name of Helicine arteries, which he has applied to them.

The helicine arteries of the penis are more easily seen in man than in any other animal which Professor Müller has examined. He has found them in all the animals in which he has sought for them; they are to be seen at the posterior part only of the penis in the stallion, but in the dog exist throughout the whole organ.

In man, the helicine twigs of the penal arteries sometimes come off singly, and at other times they form tufts or bunches, consisting of from three to ten branches, and having in general a very short common stem. The swelling at the extremity, when it occurs, is gradual, and is greatest a little way from the end. The helicine branches given off from large arteries are not of a greater size than those coming from smaller ones, and even the smallest capillary arteries of the *profunda penis*, which can be seen with the help of a glass only, give off helicine twigs of a much greater size than themselves.

Each helicine branch projecting into a venous cavern is covered by a thin membrane, which Professor Müller regards as the inner coat of the dilated vein, and when there is a tuft of helicine twigs, the whole tuft is covered with one envelope of a gauze-like membrane. This covering is considerably thicker on the helicine arteries in the posterior part of the *corpus spongiosum urethræ* than in the *corpus cavernosum*, but it seems probable that this is in some measure connected with the state of repletion of the arteries, for when the injection has run very well it becomes difficult to distinguish the external covering.

Professor Müller states that he could not discover any apertures either in the sides or in the ends of the helicine arteries, but he seems to regard it as probable that minute apertures do exist, which may be of a nature to allow the passage of blood in some states and not in others.

The helicine arteries are not, as some might be inclined to suppose, loops of vessel which have been incompletely filled, and which, after making a coil, pass into venous spaces, as E. H. Weber discovered to be the case with the arteries of the maternal portion of the placenta; they are merely projecting branches from the arterial trunks containing blood.

The helicine arteries are more numerous towards the root than near the point of the penis. They exist in the *corpus spongiosum urethræ*, especially towards its bulb, but they are not so easily seen there as in the *corpora cavernosa*. They have not yet been observed in the glans. Their structure is nearly the same in all the animals in which they have been observed: those of the ape bear the nearest resemblance to those of man, and in most animals they are less obvious than in the human subject. In the horse and dog they give off small nutrient twigs from their sides, which render them more difficult to be seen in these animals than in man.

Professor Müller conceives these helicine or tendril-like arteries to have an intimate connexion with the process of erection, and there is every probability that this is the case; but experiments and observations are still wanting to show in what manner these arterial branches are affected in the erected and non-erected condition of the texture in which they exist.

We recommend to the attention of our readers this discovery of Professor

Müller's, whose researches have already done a great deal for the advancement of physiological anatomy. The memoir is accompanied with a well executed engraving, containing numerous representations of the helicine arteries.—*Edinburgh Med. and Surg. Journal, July*, 1835.

2. *Employment of Arsenic for the Preservation of Subjects.*—The following is the method employed by M. Tranchina, of Naples, for the preservation of dead bodies, and which is said to succeed to a miracle.

He injects into the left carotid artery, with a syringe, a solution of two pounds of arsenic, coloured with a little minium or cinnabar, in twenty pints of water, or what is still better, spirits of wine. If there be signs of incipient putrefaction of the intestines, this same liquid must be introduced into the abdominal cavity. By employing the spirits of wine, every part of the body preserves much longer its freshness, and that firmness which is required in anatomical preparations. By this process a body may be preserved, it is said, for more than two months, without emitting any odour or undergoing alteration, and preserving its freshness, flexibility, and natural colour. Afterwards it dries, hardens, and acquires a dull colour, and continues in this state for many years. M. T. has also combined the arsenic with the common material for injection which solidifies on cooling; and he has injected with it the body of an infant which has been perfectly preserved.

The decoration of the order of Francis I. and 3,000 ducats have been bestowed on M. Tranchina, by the King of Naples.—*La Lancette Française, July 7th*, 1835.

## PHYSIOLOGY.

3. *Notice of some Experiments on the connexion between the Nervous System, and the Irritability of Muscles in Living Animals.* By Dr. J. Reid. With Observations by Dr. Alison.—Although physiologists are still divided in opinion as to the question whether nerves furnish a condition necessary to the irritation of muscles, (*i. e.* whether every stimulus which excites a muscle to contraction acts on it through the intervention of nervous filaments,) they have now very generally abandoned the once prevalent theory, that the irritability of muscles is derived from the brain or spinal cord, *i. e.* that muscles are continually receiving, through their nerves, from those larger masses of the nervous system, supplies of a certain influence or energy, which enables them to contract; and that some of the statements of Dr. Wilson Philip, in particular, are generally regarded as decisive against this theory.

Dr. Wilson Philip found by experiment, that the irritability of a muscle of which the nerves were entire, was exhausted by applying a stimulus directly to the muscular fibres, (sprinkling salt on them,) even more quickly than that of a muscle of which the nerves had been cut, and where all communication with the supposed source of nervous influence or energy had been cut off; and he states generally that a muscle of voluntary motion, if exhausted by stimulation, will recover its irritability by rest, although all its nerves have been divided.

But in opposition to this statement, and in support of the old theory of nervous influence continually flowing through certain of the nerves into the muscles, it has lately been stated by Mr. J. W. Earle, that when the nerves of the limb of a frog were cut, the skin stripped off, and the muscles irritated by sprinkling salt on their fibres, until they had lost their power of contraction, although they did not lose their power much more quickly than when the nerves were entire, yet *they did not regain their power*, although left undisturbed for five weeks; while the muscles of the limbs of another frog, similarly